

AMENDMENTS

In the Claims:

A. Please amend Claims 1, 7, 20-23, 48 and 83 as follows:

1. (amended) A method for producing a three dimensional reconstruction with an ultrasound system, the method comprising the steps of:
- (a) transmitting ultrasonic energy at a first frequency band into a subject during said imaging session, said subject being free of added ultrasound contrast agent throughout the entire imaging session;
 - β^1 (b) receiving ultrasonic echo information associated with said transmitted ultrasonic energy;
 - (c) [obtaining] filtering from said echo information a plurality of information signals associated with a second frequency band, said second frequency band comprising at least a harmonic band of said first frequency band; and
 - (d) forming the three-dimensional reconstruction in response to said information signals.

β^2 7. ²⁵ (amended) The method of Claim 1 wherein the step (c) comprises filtering from said echo information the plurality of [obtaining] said information signals associated with the second frequency band comprising a second harmonic band.

β^3 20. ⁶⁵ (amended) The method of Claim ~~76~~ ⁴⁴ [19] wherein said power bursts are characterized by said [first] harmonic bandwidth greater than or equal to 15% and said reduction more than 40 dB.

β^0 21. ⁵⁹ (amended) The method of Claim ~~72~~ [19] wherein said power bursts are characterized by said [first] harmonic bandwidth greater than or equal to 15% and said reduction more than 50dB.

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66 22. (amended) The method of ^{64 65}~~Claims 76 or 20~~ [Claim 19 or 20] wherein each frequency spectrum has a second bandwidth associated with said fundamental center frequency and peak amplitude, said second bandwidth being at least about 30% of the respective center frequency at points -6.8 dB with respect to the respective peak amplitude.

23. (amended) The method of Claim 3 wherein:

14 the step (a) comprises said ultrasonic energy characterized by a peak power level near said first frequency band;

33 the step (c) comprises filtering [obtaining] from said echo signals said plurality of information signals and a second plurality of information signals associated with said first frequency band;

the step (e) comprises displaying a composite image representing three dimensions, said composite image comprising spatially distinct near-field and far-field regions, said far-field region emphasizing information signals in the first frequency band and said near-field region emphasizing information signals in the second frequency band.

46 48. (amended) The method of Claim 1 further comprising step (e) of [wherein the step (c) comprises] generating said information signals as scan converted frames of data representing two-dimensional images; and wherein the step (d) comprises forming said three-dimensional reconstruction in response to said frames of data.

83. 173 (amended) An ultrasound apparatus ^{adapted} for generating a three dimensional reconstruction, said apparatus comprising:

32 a transducer;

31 a transmit beamformer operatively connected to said transducer for transmitting ultrasonic energy into a subject during ^{said} an imaging session, said subject being free of added ultrasound contrast agent throughout the entire imaging session;

a receive beamformer operatively connected to said transducer and configured to obtain echo information;

^{B⁵} a filter operatively connected to said receive beamformer and operative to filter from said echo information a plurality of information signals associated with a harmonic frequency band, said harmonic frequency band comprising harmonics of a fundamental frequency band transmitted into the [a] subject; and

wherein the three-dimensional reconstruction is responsive to said information signals.

B. Please add claims 100-114:

⁹⁰ ~~100~~. A method for producing a three dimensional reconstruction with an ultrasound system, the method comprising the steps of:

- ^{B⁶}
- (a) transmitting ultrasonic energy at a first frequency band into a subject during said imaging session, said subject being free of added ultrasound contrast agent throughout the entire imaging session;
 - (b) receiving ultrasonic echo information associated with said transmitted ultrasonic energy;
 - (c) obtaining from said echo information a plurality of detected Doppler information signals associated with a second frequency band, said second frequency band comprising at least a harmonic band of said first frequency band;
 - (d) forming the three-dimensional reconstruction in response to said information signals; and
 - (e) displaying a Doppler image selected from the group of: velocity, variance, energy and combinations thereof, the Doppler image being responsive to said three dimensional reconstruction.

⁹¹ ~~101~~. A method for producing a three dimensional reconstruction with an ultrasound system, the method comprising the steps of:

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- (a) transmitting ultrasonic energy at a first frequency band into a subject during said imaging session, said subject being free of added ultrasound contrast agent throughout the entire imaging session, said ultrasonic energy characterized by a peak power level near said first frequency band;
- (b) receiving ultrasonic echo information associated with said transmitted ultrasonic energy;
- (c) obtaining from said echo information a plurality of information signals associated with a second frequency band, said second frequency band comprising at least a harmonic band of said first frequency band, and a second plurality of information signals associated with said first frequency band;
- (d) forming the three-dimensional reconstruction in response to said information signals; and
- (e) displaying a composite image responsive to said three dimensional reconstruction and representing three dimensions, said composite image comprising spatially distinct near-field and far-field regions, said far-field region emphasizing information signals in the first frequency band and said near-field region emphasizing information signals in the second frequency band.

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~~102.~~ The method of Claim ~~101~~ wherein the receiving step (b) comprises the step of receiving ultrasonic echo information associated with multiple transmit events, such that the first and second frequency bands are associated with different transmit events.

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~~103.~~ The method of Claim ~~102~~ wherein the step (a) comprises the step of transmitting said ultrasonic energy into the subject in said different transmit events, wherein said different transmit events comprise a first transmit event focused at a greater depth and a second transmit event focused at a lesser depth.

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~~104.~~ The method of Claim ~~101~~ wherein the step (e) comprises displaying said near-field and far-field regions in a common imaging mode.

105. A method for producing a three dimensional reconstruction with an ultrasound system, the method comprising the steps of:

- (a) transmitting ultrasonic energy at a first frequency band into a subject during said imaging session, said subject being free of added ultrasound contrast agent throughout the entire imaging session;
- (b) receiving ultrasonic echo information associated with said transmitted ultrasonic energy;
- (c) obtaining from said echo information a plurality of information signals associated with a second frequency band, said second frequency band comprising at least a harmonic band of said first frequency band; and
- (d) forming the three-dimensional reconstruction in response to said information signals;

wherein the steps (a), (b) and (c) comprise obtaining said information signals associated with at least two transmit focal regions for each ultrasound transmit line direction.

106. A method for producing a three dimensional reconstruction with an ultrasound system, the method comprising the steps of:

- (a) transmitting ultrasonic energy at a first frequency band into a subject during said imaging session, said subject being free of added ultrasound contrast agent throughout the entire imaging session;
- (b) receiving ultrasonic echo information associated with said transmitted ultrasonic energy;
- (c) obtaining from said echo information a first plurality of information signals associated with said first frequency band and a second plurality of information signals associated with a second frequency band, said second frequency band comprising at least a harmonic band of said first frequency band;
- (d) compounding the first and second plurality of information signals; and
- (e) forming the three-dimensional reconstruction as a function of said compounded information signals.

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97/107. The method of Claim 106 wherein step (d) comprises summing the first and second plurality of information signals.

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108. The method of Claim 107 wherein step (d) comprises normalizing the first and second plurality of information signals.

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109. The method of Claim 108 further comprising step (f) of displaying an image that is a function of the three-dimensional reconstruction, an intermediate field of the image being a function of said compounding information signals.

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110. The method of Claim 109 where step (f) comprises displaying a composite image responsive to said three dimensional reconstruction and representing three dimensions, said composite image comprising spatially distinct near-field, intermediate field and far-field regions, said far-field region emphasizing information signals in the first frequency band and said near-field region emphasizing information signals in the second frequency band.

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111. The method of Claim 106 wherein the step (c) comprises filtering from said echo information the first and second pluralities of said information signals, the second frequency band comprising a second harmonic band.

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112. The method of Claim 106 wherein the receiving step (b) comprises the step of receiving said ultrasonic echo information associated with multiple transmit events, such that the first and second frequency bands are associated with different transmit events.

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113. The method of Claim 112 wherein the step (a) comprises the step of transmitting said ultrasonic energy into the subject in said different transmit events, wherein said different transmit events comprise a first transmit event focused at a greater depth and a second transmit event focused at a lesser depth.